

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/019472

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl⁷ F16D3/20, 3/22, F16C3/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl⁷ F16D3/20, 3/22, 3/223, 3/224, F16C3/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2005
Kokai Jitsuyo Shinan Koho 1971-2005 Toroku Jitsuyo Shinan Koho 1994-2005

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 11-101259 A (NTN Corp.), 13 April, 1999 (13.04.99), Column 1, line 1 to column 7, line 23; Figs. 1, 2 (Family: none)	1-4
Y	JP 2003-130082 A (NTN Corp.), 08 May, 2003 (08.05.03), Full text; all drawings & FR 2831626 A1 & US 2003/0083135 A1	1-4
Y	JP 51-138257 A (Löhr & Bromkamp GmbH), 29 November, 1976 (29.11.76), Page 3, upper right column, lines 3 to 8; Fig. 3 & DE 2522670 A1 & FR 2311960 A1 & GB 1553369 A & US 4116020 A	1-4

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
07 April, 2005 (07.04.05)

Date of mailing of the international search report
26 April, 2005 (26.04.05)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

ATTACHMENT E

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 57-167520 A (Lohr & Bromkamp GmbH.), 15 October, 1982 (15.10.82), Page 1, lower right column, 8 to 11; page 3, upper right column, lines 12 to 17; Fig. 3 & DE 3114290 A1 & FR 2503811 A1 & GB 2096738 A & US 4608028 A	1-4
Y	JP 8-121491 A (Koyo Seiko Co., Ltd.), 14 May, 1996 (14.05.96), Full text; all drawings (Family: none)	1-4
Y	JP 9-177813 A (NTN Corp.), 11 July, 1997 (11.07.97), Full text; all drawings & DE 19653573 A1 & US 5855519 A	1-4
Y	US 3785172 A (GENERAL MOTORS CORP.), 15 January, 1974 (15.01.74), Column 4, lines 11 to 30; column 5, lines 21 to 34; column 6, line 55 to column 7, line 4; column 7, lines 22 to 30; Figs. 1, 4 & FR 2205968 A1 & GB 1399409 A	1-4